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EXAMINER	
THOMPSON, TIMOTHY J	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,486	LO ET AL.	
	Examiner	Art Unit	
	TIMOTHY J. THOMPSON	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-11, 13, 19-24, 27-34, 36, 37* is/are rejected.

7)☒ Claim(s) *7,12,14-18,25,26 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4, 5, 8, 9, 19-21, 29-32, 34, 36, 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Floyd(U.S. Pat. Pub. No. 2003/0095336).

Regarding claim 1, Floyd discloses a first partition that is flexible and optically transparent(fig 1, 21); a second partition that is coupled to the first partition(fig 1, 33), wherein at least a portion of the second partition is optically transparent, and wherein a first cavity is formed in between the first partition and the second partition(fig 1); a first fluidic medium positioned within the cavity, the fluidic medium also being optically transparent(fig 1, 23); and a first component capable of controlling a parameter of the fluidic medium, wherein when the parameter of the fluidic medium changes, the first partition flexes and an optical property of the lens is varied(fig 8).

Regarding claim 2, Floyd discloses the first partition is a flexible membrane formed from at least one of a thin plastic polymer and a flexible, optically transparent material(para 0058).

Regarding claim 4, Floyd discloses wherein the second partition is a rind partition formed from at least one of a plastic and a material that is at least partly optically transparent.(fig 1, and para 0054).

Regarding claim 5, Floyd discloses wherein the second partition includes at least one channel allowing for the first fluidic medium to at least one of enter and exit the cavity(fig 1, 67, 69).

Regarding claim 8, Floyd discloses wherein a first side of the flexible membrane is adjacent to the first fluidic medim a and a second side of the flexible membrane is adjacent to a second fluidic medium(fig 1, the chamber facing 53).

Regarding claim 9, Floyd discloses wherein the second fluidic medium is air from the atmosphere(para 0075 since a water tight seal is used to prevent water from leaking in and not other material is added to the chamber, the chamber inherently has air within the camber).

Regarding claim 19, Floyd discloses wherein the lens device is capable of being controlled by the component to achieve a range of focal distances(para 0078).

Regarding claim 20, Floyd discloses A set of eyeglasses including the lens device as detailed above(para 0008).

Regarding claim 21, Floyd discloses wherein the system is at least one of a camera, a microscope, a video monitor, a video recorder, an optical recording mechanism, a surveillance mechanism, an inspection mechanism, an agile imaging mechanism, a target tracking mechanism, a copy machine, a scanner, a zoom lens system, a cellular phone, a personal digital assistant, a computer, a magnifying glass, and a vision correction device(para 0008).

Regarding claim 29, Floyd discloses a method of fabricating a fluidic adaptive lens providing a first structure having a first cavity, wherein the first cavity is only

partially enclosed by the first structure(fig 1, 19); attaching a first flexible layer and the first structure to one another in a manner that substantially encloses the first cavity(fig 1, 51); wherein the first cavity is capable of being filled with a first fluid so that the first structure, first flexible layer, and first fluid interact to form the fluidic adaptive lens device(para 0011).

Regarding claim 30, Floyd discloses creating at least one channel within at least one of the first structure and the first flexible layer that allows for communication of the first fluid with respect to the cavity(para 0011).

Regarding claim 31, Floyd discloses coupling at least one fluid reservoir and at least one actuator to the at least one channel to allow for communication of the first fluid with respect to the first cavity; and communicating the first fluid into the first cavity(para 0085).

Regarding claim 32, Floyd discloses wherein at least one of the first structure and the first flexible layer includes at least one channel, so that the attaching of the first flexible layer and the first structure to one another encloses the first cavity except for the at least one channel(para 0075)

Regarding claim 34, Floyd discloses providing a second structure having a second cavity, wherein the second cavity is only partially enclosed by the second structure; attaching the first flexible layer and the second structure to one another in a manner that substantially encloses the second cavity(para 0075).

Regarding claim 36, Floyd discloses providing a lens structure including a flexible layer and a rigid structure coupled to one another and forming a cavity; and

adjusting a fluid pressure of fluid within the cavity so as to adjust a flexure of the flexible layer(para 0085).

Regarding claim 37, Floyd discloses wherein the adjusting of the fluid pressure causes at least one of a change in a focal distance and a change in lens type(para 0078).

Claims 1, 2, 4, 6-8, 10, 11, 13, 22-24, 27-29, 33, 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Silver(GB 2184562 A).

Regarding claim 1, Silver discloses a first partition that is flexible and optically transparent(fig 2, 1); a second partition that is coupled to the first partition(fig 2, 6), wherein at least a portion of the second partition is optically transparent, and wherein a first cavity is formed in between the first partition and the second partition(fig 1); a first fluidic medium positioned within the cavity, the fluidic medium also being optically transparent(pg 1, lines 25-35); and a first component capable of controlling a parameter of the fluidic medium, wherein when the parameter of the fluidic medium changes, the first partition flexes and an optical property of the lens is varied(pg 2, 20-30).

Regarding claim 2, Silver discloses the first partition is a flexible membrane formed from at least one of a thin plastic polymer and a flexible, optically transparent material(pg 1, lines 110-115).

Regarding claim 4, Silver discloses the second partition is a rind partition formed from at least one of a plastic and a material that is at least partly optically transparent(pg 1, 110-130).

Regarding claim 6, Silver discloses the second partition includes a first portion that extends substantially parallel to the first partition when the first partition is in an unflexed position and also includes a second portion that extends substantially perpendicularly to the first portion(fig 2).

Regarding claim 7, Silver discloses the cavity is substantially cylindrical, the second portion forms a substantially cylindrical wall around the cavity, and the first partition and the first portion of the second partition respectively form first and second cylinder end walls of the cavity(fig 2).

Regarding claim 8, Silver discloses a first side of the flexible membrane is adjacent to the first fluidic medium and a second side of the flexible membrane is adjacent to a second fluidic medium(fig 2).

Regarding claim 10, Silver discloses a third partition that is coupled to at least one of the first partition, the second partition, and an intermediate structure that is coupled to at least one of the first partition and the second partition(fig 2, 17,19).

Regarding claim 11, Silver discloses a second cavity is formed in between the third partition and the first partition, wherein the first partition extends substantially in between the second and third partitions, and wherein the second fluidic medium is positioned within the second cavity (fig 2, 20).

Regarding claim 13, Silver discloses a the third partition is rigid, and the second and third partitions substantially surround the first partition so that the first partition is shielded from an outside environment(pg 2, lines 85-90).

Regarding claim 22, Silver discloses a first fluidic adaptive lens; a second fluidic adaptive lens(fig 2); and an intermediate structure coupling the first and second fluidic adaptive lenses, wherein the intermediate structure is at least partly optically transparent.(fig 2, 6)

Regarding claim 23, Silver discloses each of the first and second fluidic adaptive lenses includes at least one flexible membrane and at least one rigid surface that together define at least one cavity within which is at least one fluidic medium(fig 2 and pg 2, lines 85-90).

Regarding claim 24, Silver discloses each of the first and second fluidic adaptive lenses includes either one or two flexible membranes(fig 2).

Regarding claim 27, Silver discloses zoom lens system including the multi-lens system(claim 12).

Regarding claim 28, Silver discloses the system is at least one of a camera, a microscope, a video monitor, a video recorder, an optical recording mechanism, a surveillance mechanism, an inspection mechanism, an agile imaging mechanism, a target tracking mechanism, a copy machine, a scanner, a zoom lens system, a cellular phone, a personal digital assistant, a computer, a magnifying glass, and a vision correction device(claim 12).

Regarding claim 29, Silver discloses a method of fabricating a fluidic adaptive lens providing a first structure having a first cavity, wherein the first cavity is only partially enclosed by the first structure(fig 2, 1); attaching a first flexible layer and the first structure to one another in a manner that substantially encloses the first cavity(fig 2,

6); wherein the first cavity is capable of being filled with a first fluid so that the first structure, first flexible layer, and first fluid interact to form the fluidic adaptive lens device(pg 1, lines 110-130).

Regarding claim 33, Silver discloses affixing the first structure to a first side of an intermediate substrate; and affixing a second lens device, to a second side of the intermediate substrate, wherein the first and second lens devices and the intermediate substrate can be operated together as a zoom lens system(fig 2, 19).

Regarding claim 34, Silver discloses providing a second structure having a second cavity, wherein the second cavity is only partially enclosed by the second structure; attaching the first flexible layer and the second structure to one another in a manner that substantially encloses the second cavity(fig 2).

Allowable Subject Matter

Claims 7, 12, 14-18, 25, 26, 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The allowable features being the specifics to the lens device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY J. THOMPSON whose telephone number is (571)272-2342. The examiner can normally be reached on 8:30 AM - 6:00 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mack Ricky can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy J Thompson/
Primary Examiner, Art Unit 2873

3. The lens device of claim 2, wherein the first partition is formed from polydimethylsiloxane.

4. The lens device of claim 1, wherein the second partition is a rind partition formed from at least one of a plastic and a material that is at least partly optically transparent.

5. The lens device of claim 4, wherein the second partition includes at least one channel allowing for the first fluidic medium to at least one of enter and exit the cavity.

6. The lens device of claim 4, wherein the second partition includes a first portion that extends substantially parallel to the first partition when the first partition is in an unflexed position and also includes a second portion that extends substantially perpendicularly to the first portion.

7. The lens device of claim 6, wherein the cavity is substantially cylindrical, the second portion forms a substantially cylindrical wall around the cavity, and the first partition and the first portion of the second partition respectively form first and second cylinder end walls of the cavity.

8. The lens device of claim 1, wherein a first side of the flexible membrane is adjacent to the first fluidic medim a and a second side of the flexible membrane is adjacent to a second fluidic medium.

9. The lens device of claim 8, wherein the second fluidic medium is air from the atmosphere.

10. The lens device of claim 8, further comprising a third partition that is coupled to at least one of the first partition, the second partition, and an intermediate structure that is coupled to at least one of the first partition and the second partition.

11. The lens device of claim 10, wherein a second cavity is formed in between the third partition and the first partition, wherein the first partition extends substantially in between the second and third partitions, and wherein the second fluidic medium is positioned within the second cavity.

12. The lens device of claim 11, further comprising a second component capable of controlling a second parameter of the second fluidic medium, and wherein each of the first and second devices includes at least one actuator selected from the group

consisting of a small-mounted pump, a piezoelectric actuator, a microelectromechanical system (MEMS) actuator, and a Teflon-coated screw for controlling and setting fluidic pressure and volume.
13. The lens device of claim 11, wherein the third partition is rigid, and the second and third partitions substantially surround the first partition so that the first partition is shielded from an outside environment.
14. The lens device of claim 10, further comprising a fourth partition that is coupled to the third partition, wherein a third cavity is formed in between the third

partition and the fourth partition, wherein the third partition extends substantially in between the first and fourth partitions, and wherein at least one of the first fluidic medium, the second fluidic medium and a third fluidic medium is positioned within the third cavity.
15. The lens device of claim 14, wherein the third partition is coupled to the first partition by way of the intermediate structure that is an intermediate wall, and wherein the third partition is'a flexible membrane.
16. The lens device of claim 15, wherein flexing of the first and third partitions depends upon relative pressures of the fluidic media within the first, second and third cavities.
17. The lens device of claim 15, wherein the lens device is capable of being operated as at least one of a convex lens, a concave lens, a piano-convex lens, a piano- concave lens, a convex-concave lens, a biconvex lens, and a biconcave lens.
18. The lens device of claim 17, wherein the lens device is capable of being operated as at least two of the convex lens, a concave lens, a piano-convex lens, a piano- concave lens, a convex-concave lens, a biconvex lens, and a biconcave lens.
19. The lens device of claim 1, wherein the lens device is capable of being controlled by the component to achieve a range of focal distances.
20. A set of eyeglasses including the lens device of claim 1.
21. A system including the lens device of claim 1, wherein the system is at least one of a camera, a microscope, a video monitor, a video recorder, an optical recording mechanism, a surveillance mechanism, an inspection mechanism, an agile imaging mechanism, a target tracking mechanism, a copy machine, a scanner, a zoom lens system, a cellular phone, a personal digital assistant, a computer, a magnifying glass, and a vision correction device.
22. A multi-lens apparatus comprising:
a first fluidic adaptive lens; a second fluidic adaptive lens; and
an intermediate structure coupling the first and second fluidic adaptive lenses, wherein the intermediate structure is at least partly optically transparent.
23. The multi-lens apparatus of claim 22, wherein each of the first and second fluidic adaptive lenses includes at least one flexible membrane and at least one rigid surface that together define at least one cavity within which is at least one fluidic medium.
24. The multi-lens apparatus of claim 23, wherein each of the first and second fluidic

adaptive lenses includes either one or two flexible membranes.
25. The multi-lens apparatus of claim 22, wherein at least one parameter of each of the at least one fluidic medium is controllable by at least one of means for providing fluid flow and means for varying fluid pressure.
26. The multi-lens apparatus of claim 25, wherein by controlling the at least one parameter, a flexure of the at least one membrane occurs that affects at least one of a lens focal distance and a lens type.
27. A zoom lens system including the multi-lens system of claim 22.
28. A system including the zoom lens system of claim 27, wherein the system is at least one of a camera, a microscope, ,a video monitor, a video recorder, an optical recording mechanism, a surveillance mechanism, an inspection mechanism, an agile imaging mechanism, a target tracking mechanism, a copy machine, a scanner, a zoom lens system, a cellular phone, a personal digital assistant, a computer, a magnifying glass, and a vision correction device.
29. A method of fabricating a fluidic adaptive lens device, the method comprising:
providing a first structure having a first cavity, wherein the first cavity is only partially enclosed by the first structure;
attaching a first flexible layer and the first structure to one another in a manner that substantially encloses the first cavity;
wherein the first cavity is capable of being filled with a first fluid so that the first structure, first flexible layer, and first fluid interact to form the fl
30. The method of claim 29, further comprising:
creating at least one channel within at least one of the first structure and the first flexible layer that allows for communication of the first fluid with respect to the cavity.
31. The method of claim 30, further comprising:
coupling at least one fluid reservoir and at least one actuator to the at least one channel to allow for communication of the first fluid with respect to the first cavity; and
communicating the first fluid into the first cavity.
32. The method of claim 29, wherein at least one of the first structure and the first flexible layer includes at least one channel, so that the attaching of the first flexible layer and the first structure to one another encloses the first cavity except for the at least one channel.
33. The method of claim 29, further comprising:
affixing the first structure to a first side of an intermediate substrate; and
affixing a second lens device, to a second side of the intermediate substrate,
wherein the first and second lens devices and the intermediate substrate can be operated together as a zoom lens system.
34. The method of claim 29, further comprising:
providing a second structure having a second cavity, wherein the second cavity is only partially enclosed by the second structure;
attaching the first flexible layer and the second structure to one another in a manner that substantially encloses the second cavity.

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35. The method of claim 34, wherein the additional structure includes the second cavity and a third cavity.
36. A method of operating a lens device, the method comprising:
providing a lens structure including a flexible layer and a rigid structure coupled to one another and forming a cavity; and
adjusting a fluid pressure of fluid within the cavity so as to adjust a flexure of the flexible layer.
37. The method of claim 36, wherein the adjusting of the fluid pressure causes at least one of a change in a focal distance and a change in lens type.